

# CO visits/inspections and Control Measures

The below advice is a combination from HSE guidance, the Peterborough Toolkit and officer experience.

## Inspection Tips

\*When it comes to solid fuel appliances, you should be looking to satisfy yourself of the following;

1. The appliance is sited in a suitable place, i.e. where there is free movement of air and that it has a working extraction system.
2. There is evidence of regular thorough examination as required by regulation 9 of COSHH.
3. There is a functioning, audible CO detector/alarm, sited in accordance with the manufacturer's instructions and that all employees know what to do if it is activated.
4. The employees are aware of the signs and symptoms of exposure to CO and know how to raise any concerns.
5. A system is in place to ensure that fans are switched on when fuel is lit, and left on until it has stopped smouldering altogether.

## Issues with Gas, Electrical Equipment and Appliances for outdoor use:

1. **\*Gas or electric appliance converted to burn solid fuel**  
Using solid fuel in a gas or electric appliance introduces the risk of overheating, fire and increases in carbon monoxide production. Seek specialist advice before taking enforcement action. HSE Initial Enforcement Expectation: PN
2. **\*Appliances intended for outdoor use**  
It may not be obvious if an appliance is intended for outdoor use, however the main issue is whether it has an extraction system associated with it. Any solid fuel appliance that is being used without extraction should be prohibited. If you suspect an appliance is intended solely for outdoor use, but is being used indoors with extraction, ask to see the manufacturer's instructions and seek specialist advice before taking enforcement action.  
HSE Initial Enforcement Expectation: PN.

## CONTROLS FOR CARBON MONOXIDE:

The business should have completed a **COSHH assessment** and outlined their controls. They should have considered/implemented the following:

### 1. Substitution:

Ideally, substitution of the charcoal appliance with a safer alternative, such as electric, gas or gas with lava rock etc

Look at alternative ways of cooking the food, that do not use charcoal

- Can the item be cooked with another appliance?
- Can it be bought ready cooked, then heated?

## 2. Extraction:

- Ideally, separate extraction for the charcoal appliance.
- Extraction suitable, maintained, cleaned regularly, thorough examination.
- Position of the appliance in relation to extraction.
- **ALWAYS** on when charcoal burning.
- Consider use of timers on extraction.
- Extraction needs to run at optimum settings.
- Tamperproof controls so that staff do not adjust them (with temperature).

### \*Thorough Examination under COSHH

Regulation 9 of the Control of Substances Hazardous to Health regulations 2002 (as amended) states;

“Where engineering controls are provided to meet the requirements of regulation 7, the employer shall ensure that thorough examination and testing of those controls is carried out – (a) in the case of local exhaust ventilation plant, at least once every 14 months...”

If there is no evidence of immediate risk and if CO is otherwise controlled (a CO monitor will help) provide some leeway on the timing of the first examination, but stress the importance of on-going compliance.

HSE Initial Enforcement Expectation: IN

Estimated cost of thorough examination (January 2015) under COSHH at £150 + VAT (every 14 months).

Businesses must use a competent person. HETAS, B & ES, CEDA and CESA will be able to advise duty-holders.

## 3. Replacement Air Provision:

- Needs a PERMANENT source of replacement air.
- Air vents or air bricks MUST NOT be covered or blocked.
- Opening windows or doors do not provide acceptable replacement air provision.



#### 4. Charcoal used:

- Use as little as possible, less charcoal means less CO.
- Cleared at end of day (if possible), **before** extraction off. Put outside of premise and extinguished.
- Business to assess and identify a time to stop adding more charcoal to limit amount of coal left at closing time.
- Best quality does not mean no CO, or even necessarily less CO.
- Solid fuel should be stored in a dry and ventilated area.

#### 5. Carbon Monoxide Alarms

- Commercial grade CO detector is necessary as part of the control measures.
- Preferably mains (hardwired) alarms.
- At least one, but more would be better.
- Installation and position is important – must follow manufacturers guidance.
- Business should consider preventing tampering of devices.
- Consider neighbouring premises especially if accommodation involved.
- Emergency procedure should be documented and reviewed as necessary. Actions to take should alarm sound.
- Staff trained – see details below (section 6).



- An IN should be considered, if no commercial grade CO detector.
- Interlocking of the CO detector to the extract ventilation is not mandatory. The duty holder will need to explain how they are going to control inadvertent exposure of persons after the extraction system is switched off.

\*Consideration must be given to anyone remaining in or close to the property after the extraction system is switched off, e.g. cleaners; neighbouring properties and anyone re-entering the property after it is closed.

Options include:

1. Emptying coals\* – A safe method of doing this must be in place (based on a risk assessment) and employees should be trained in it. It will be helpful if written procedures are displayed, but this is not mandatory.
2. Leaving extraction on 24/7.
3. Working out how long until coals burn out completely, then using a timer (+ time buffer and periodic checks).
4. It is important to ensure that extraction systems are switched on when the appliance is lit and not left off until cooking begins.
5. Duty holders might have their own suggestions, but ensure they are appropriate (e.g. simply putting a lid over a tandoori oven is not a suitable control measure).

A safe system of work may include:

1. Reduce coal use towards the end of the night to limit the amount of coal left.
2. Spread out coals and allow to burn and cool down **with ventilation on** while closing down.
3. Only trained staff to remove all embers and ash and place in suitable non-combustible container using PPE provided (as identified in the risk assessment).
4. Place outside a safe distance away from any combustible materials.
5. Slowly add water to the container to douse the embers and ash.
6. Ventilation can now be turned off.
7. Leave outside until the next day and remove water and dispose of waste ash.

You may wish to contact your planning team to see if you can add an interlocked CO Alarm to be added as a condition or informative to the planning consent for the installation of a new extract system.

## 6. Information Instruction and Training

- Employees must be aware of the signs and symptoms of CO exposure and how to raise concerns.
- Employees must be trained in the safe working procedures (SWP) and control measures.
- Employees must know what to do when the CO alarm sounds.
- Recommended for written closing down procedure/SWP to be displayed.
- If possible, speak to the workers to check their understanding. Training is not costly or time consuming as information is widely (and freely) available.
- Competency of employees to be assessed (observing them when performing the task, record findings).

## MONITORING USING DATA LOGGER:

If no immediate issues but you still have concerns, then you may want to undertake some monitoring using a CO data logger.

### Result below the Workplace Exposure Limit

- Businesses should still be implementing the controls highlighted above.

### Results above the Workplace Exposure Limit

- Enforcement notice IN or PN dependant on circumstances.  
- Ideally substitute material/process then no ongoing checks but verify/confirm status quo at next food visit.

If not substitute, then:

- FBO to reassess COSHH assessment for the processes and establish suitable controls and implement.  
Officer to recheck CO levels with data logger – if still above WELs consider further actions.

### Data Logger Examples

Gas Alert Extreme Carbon monoxide (CO) 35-200 (Yellow) £ 195.00 per, link below:

[http://www.honeywellanalytics.com/~media/honeywell-analytics/products/gasalert-extreme/documents/english/orderinfo\\_gasalert\\_extreme\\_rev26.pdf?la=en](http://www.honeywellanalytics.com/~media/honeywell-analytics/products/gasalert-extreme/documents/english/orderinfo_gasalert_extreme_rev26.pdf?la=en)

This unit has an accuracy (overall error) **±1 % of reading.**

Cheaper version called EL-USB-CO Carbon – Monoxide Data Logger which is around £85.00, link below:

<http://www.lascarelectronics.com/temperaturedatalogger.php?datalogger=104>

This has an accuracy (overall error) **±6 % of reading.**

## RESIDENTIAL INSPECTION AID

The CIEH and PHE have developed an inspection aid for use in residential premises. This can be found at the link below

[https://www.gov.uk/government/uploads/system/uploads/attachment\\_data/file/485615/CO\\_residential\\_inspection\\_aid\\_2015.pdf](https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/485615/CO_residential_inspection_aid_2015.pdf)

The inspection aid is intended for use by officers when inspecting privately rented, owner occupier or social housing property or on the back of a complaint re CO or odours. **It requests the LA report such situations to the local HPT or via PHE Centre for Radiation, Chemicals and Environmental Hazards (CRCE).** It is useful for the HPT to be notified for surveillance purposes. PHE (CRCE or HPT) may hear of an incident via a different route (e.g. emergency services, hospital etc) so it's useful for us to be able to 'join the dots up' if we knew about a certain situation from that perspective too.

## Guidance:

HSE Solid fuel catering appliances – enforcement guidance

<http://www.hse.gov.uk/foi/internalops/og/og-00078.htm>

[Preventing exposure to carbon monoxide from use of solid fuel appliances in commercial kitchens'](#)

['Catering Information Sheet 10 – Ventilation in catering kitchens'](#)

### CARBON MONOXIDE EXPOSURE LEVELS AND SYMPTOMS:

Carbon monoxide levels in air Parts per million	Exposure Time	Typical Symptoms
0.2 ppm		Typical natural levels of carbon monoxide in air
30 ppm	8 hours	Carbon Monoxide Workplace Exposure Limit (WEL) for 8hr period
200 ppm	2 to 3 hours	Carbon Monoxide Workplace Exposure Limit (WEL) for 15min period. Mild headache, fatigue, nausea, dizziness
400 ppm	1 to 2 hours	Serious headache, other symptoms intensify. Continued exposure can be life threatening after 3hrs, depending on circumstances
800 ppm	45 minutes	Dizziness, nausea, convulsions. Unconscious within 2 hours. Continued exposure: Death within 2 to 3 hours
1600 ppm	20 minutes	Headache, dizziness, nausea. Continued exposure: Death within 1 hour
3200 ppm	5 to 10 minutes	Headache, dizziness, nausea. Continued exposure: Death within 1 hour
6400 ppm	1 to 2 minutes	Headache, dizziness, nausea. Continued exposure: Death within 25 to 30 minutes
12800 ppm	1 to 3 minutes	Death within 1 to 3 minutes

\*Taken from the HSE Solid fuel catering appliances – enforcement guidance